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EXAMINER

MULLEN, KRISTEN DROESCH

ART UNIT

PAPER NUMBER

3766

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/741,302

Applicant(s)

YOUNG ETAL

Examiner

Kristen Mullen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 7/20/05 (Petition).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9 and 11 is/are rejected.
- 7) ☒ Claim(s) 5 and 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/26/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4-5, 8 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 4, it is unclear what is meant by "at least 10 percent of the chest compression artifacts". Does this mean "at least 10 percent of a change in amplitude of the compression artifacts"?

3. Claim 5 recites the limitation "the magnitude" spanning lines 5-6.

Claim 8 recites the limitation "the variations" in line 4.

Claim 9 recites the limitation "the phase shift" in line 5.

There is insufficient antecedent basis for these limitations in these claims.

### ***Drawings***

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: P (Fig. 1) and G (Fig. 5).

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 112. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include

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all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

7. The disclosure is objected to because of the following informalities: "Fig. 13" on page 11, line 8 should be changed to --Fig. 14--. "Fig. 14" on page 11, line 13 should be changed to --Fig. 13--. "Fig. 13" on page 11, line 14 should be changed to --Fig. 12--. "14" on page 11, line 22 should be changed to --13--. "Fig. 14" on page 11, line 25 should be changed to --Fig. 13--.

Appropriate correction is required.

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8. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: RHYTHM IDENTIFICATION IN COMPRESION CORRUPTED ECG SIGNAL.

*Claim Objections*

9. Claim 7 is objected to because of the following informalities: typographical error "along" in line 3 should be changed to --among--. Appropriate correction is required.

*Claim Rejections - 35 USC § 102*

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-2 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Elghazzawi et al. (2004/0162585).

Regarding claims 1-2, Elghazzawi shows continuing to apply chest compressions to a victim while generating corrupted ECG signals corrupted by chest compression artifacts; analyzing the corrupted ECG signals including analyzing the intermediate portions that lie between successive chest compression artifacts but not portions of the ECG signals that include the chest compression artifacts (Paras. [0025]-[0027]).

With respect to claim 6, Elghazzawi shows a computer circuit that receives ECG signals that contain chest compression artifacts, that recognizes the chest compression artifacts, and that analyzes portions of the ECG signals that lie between the chest compression artifacts (Paras. [0025]-[0027]).

12. Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Shen et al. (5,029,082). Shen shows a computer circuit constructed to generate integral signals that represent a computation of a transform (space, time or frequency domain) of the ECG signal, a computation of an autocorrelation ( $V_{xx}$ ,  $V_{yy}$ ; Figs. 8g, 8h) of a group of spike regions of the transform, a computation of crosscorrelations ( $V_{xy}$ ; Fig. 8i) of the spike regions of the group, and a computation of integrals of the differences (step 165) between each crosscorrelation and said autocorrelation, said computer circuit is constructed to indicate that the ECG signals are from a beating heart with perfusion rhythm (normal report, step 169) when said integral signals are less than a predetermined value (negative, less than 2.40 mV, steps 166-168) (Col. 11, line 32-Col. 16, line 26; Figs 7-16).

### ***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elghazzawi et al. (2004/0162585) in view of Sickler (5,417,221). Elghazzawi shows identifying QRS complexes in short periods between successive chest compression artifacts (Para. [0024]).

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However, Elgahazzawi fails to explicitly show identifying the QRS complex includes detecting two successive portions that are of opposite large slopes and large changes in amplitudes or detecting large slopes in ECG signals among large amplitudes of voltage change. Attention is directed to Sickler which teaches that discriminating between the slopes and amplitudes of the R-wave (QRS complex) and interfering noise provides accurate monitoring by isolating the R-wave (QRS complex) from extraneous noise (Col. 2, line 66-Col. 3, line 3; Fig. 1). Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the method and computer circuit of Elghazzawi with identifying the QRS complex including detecting two successive portions that are of opposite large slopes and large changes in amplitudes or detecting large slopes in ECG signals among large amplitudes of voltage change such as taught by Sickler in order to provide accurate monitoring by isolating the R-wave (QRS complex) from extraneous noise.

The use of the word “means” in claims 6-11 does not invoke 35 U.S.C. 112, 6<sup>th</sup> paragraph treatment.

***Allowable Subject Matter***

15. Claims 5 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. Claims 4-5 and 8-9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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*Conclusion*

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Freeman (2001/0047140), Halperin et al.(6,390,996) and Geheb et al. (2004/0267325) all show resuscitation devices that measure the ECG signal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kristen Mullen whose telephone number is (571) 272-4944. The examiner can normally be reached on M-F, 10:30 am-6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert E. Pezzuto can be reached on (571) 272-6996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kristen Mullen  
Patent Examiner  
Art Unit 3766

kdm